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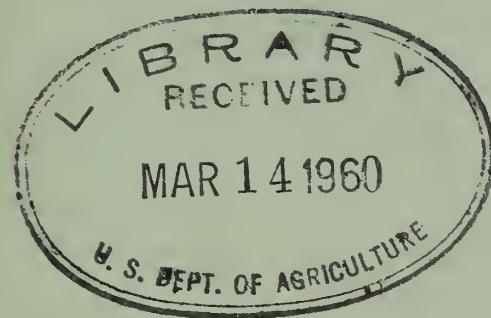
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FIFTEENTH INTERNATIONAL DAIRY CONGRESS

Held at London, England, June 29-July 3, 1959

IVI
REPORT OF

THE DELEGATION OF THE UNITED STATES
TO THE SECRETARY OF STATE



UNITED STATES DEPARTMENT OF AGRICULTURE
✓ Agricultural Research Service
✓ Animal Husbandry Research Division
Beltsville, Maryland

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LETTER OF SUBMITTAL

The Honorable
The Secretary of State

Dear Mr. Secretary:

I have the honor to submit herewith a report of the participation in the Fifteenth International Dairy Congress by the delegates representing the Government of the United States.

The Congress was held in London, England, June 29 to July 3, 1959. The delegates of the United States to the Congress were designated under the authority of the President by the Department of State on June 3, 1959, pursuant to an invitation from the Government of Great Britain to the Government of the United States to participate in this Dairy Congress. The appointments were transmitted to the Department of Agriculture by you.

A preliminary report was submitted to you at the close of the Congress meetings on July 9, 1959. The report herewith summarizes the work of the Congress and gives a brief account of the participation by delegates and individuals from the United States.

Respectfully submitted.

R. E. Hodgson, Delegate

December 1, 1959

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FIFTEENTH INTERNATIONAL DAIRY CONGRESS

London, England, June 29 to July 3, 1959

REPORT OF THE UNITED STATES DELEGATION

BACKGROUND

The Fifteenth International Dairy Congress was held in London, England, June 29 to July 3, 1959. The Congress was organized by The United Kingdom Dairy Association as the National Committee of the International Dairy Federation. The Congress was organized under the co-patronage of H.M. The Queen and H.M. Queen Elizabeth The Queen Mother. H.R.H. Prince Philip, Duke of Edinburgh, was the Congress President.

The International Dairy Federation, organized in 1903 for the purpose of promoting the solution of local and international scientific, technical and economic problems relating to dairying in the interest of humanity as a whole, sponsors the International Dairy Congresses. The Federation studies economic questions solely from the standpoint of technical and applied science. Its work is not influenced by commercial or political considerations. The Federation accomplishes its objectives through nine special commissions which are its main technical working instrument. As one additional means of achieving its objectives, the Federation organizes International Dairy Congresses for the purpose of holding forums for the exchange of technical and applied knowledge on dairy science.

Congresses are held about every three years and are organized and put on by an organizing committee in one of the countries that is a member of the International Dairy Federation. There are 24 countries presently maintaining membership in the International Dairy Federation. They are: Australia, Austria, Belgium, Bulgaria, Canada, Denmark, Finland, France, Federal Republic of Germany, Great

Britain, India, Ireland, Israel, Italy, Japan, Luxemburg, Netherlands, Norway, New Zealand, Poland, Spain, Sweden, Switzerland, and the Union of Soviet Socialist Republics. In some instances, the governments of the countries named maintain the membership in the Federation. In other instances, an association of commercial groups in a country constitutes a national committee that maintains the membership in the Federation. The headquarters office of the International Dairy Federation is maintained at 10, Rue Ortelius, Brussels 4, Belgium.

The first International Dairy Congress was held at Brussels, Belgium, at the time the International Dairy Federation was founded in 1903. Data relating to this and subsequent Congresses are shown in the following table:

Con-	Place	Date	Sec-	Papers	Countries officially represented	Number of participants
gress	:	:	tions	:	:	:
I	:Brussels	:Sept. 8-11, 1903	: 3	: 57	: 16	: 700
II	:Paris	:Oct. 16-19, 1905	: 6	: 48	: 17	: 1,170
III	:The Hague	:Sept. 16-20, 1907	: 3	: 60	: 21	: 900
IV	:Budapest	:June 6-11, 1909	: 3	: 67	: 20	: 1,020
V	:Stockholm	:June 28-July 1, 1911	: 2	: 52	: 23	: 900
VI	:Berne	:June 8-10, 1914	: 4	: 54	: 28	: 894
VII	:Paris	:May 16-19, 1926	: 7	: 78	: 27	: 1,500
VIII	:London	:June 26-July 12, 1928	: 7	: 92	: -	: 1,980
IX	:Copenhagen	:July 13-17, 1931	: 5	: 145	: 52	: 2,092
X	:Rome/Milan	:April 30-May 6, 1934	: 7	: 213	: -	: 2,600
XI	:Berlin	:Aug. 22-28, 1937	: 4	: 413	: 53	: 3,638
XII	:Stockholm	:Aug. 15-19, 1949	: 6	: 416	: 60	: 2,190
XIII	:The Hague	:June 22-26, 1953	: 5	: 327	: 38	: 2,090
XIV	:Rome	:Sept. 24-28, 1956	: 3	: 451	: 53	: 2,653
XV	:London	:June 29-July 3, 1959	: 6	: 380	: 52	: 2,394

RELATION OF UNITED STATES DAIRY INDUSIRY TO INTERNATIONAL DAIRY CONGRESS

The United States is not a member of the International Dairy Federation. In spite of the non-membership status of the United States, dairy scientists and others interested in dairying in this country have been in attendance at all of the International Dairy Congresses held and this government has sent official delegations to all Congresses beginning with the Eighth in 1928. This official representation has been made possible by reason of the fact that the government of the

host country organizing each Congress has made it a practice to tender the Government of the United States, along with governments of other non-member countries, an invitation to attend and participate in the Congress.

In addition to the International Dairy Congresses listed above, a similar Congress was held in the United States in 1923 at Washington, D. C., Philadelphia, Pa., and Syracuse, N. Y. Many of the nations that are members of the International Dairy Federation sent official delegations to the 1923 Congress.

PARTICIPATION OF THE UNITED STATES IN THE FIFTEENTH INTERNATIONAL DAIRY CONGRESS MEETING

On October 2, 1958, the British Government extended an invitation to the United States Government to send delegates to take part in the meetings of the Fifteenth International Dairy Congress, which was to be held in London, England, June 29 to July 3, 1959. This invitation, transmitted to the Secretary of State from the British Ambassador on behalf of the British Government, was referred to the Secretary of Agriculture who recommended to the Secretary of State that an official delegation be appointed to attend the Fifteenth International Dairy Congress. This invitation was accepted by the Department of State on June 3, 1959. Liaison contact was established between representatives of this Government and the British Organizing Committee for achieving United States participation in the Congress.

Delegation of the United States of America to the Fifteenth International Dairy Congress

Upon recommendation of the Secretary of Agriculture, the following delegation was named by the Secretary of State to represent the United States at the Fifteenth International Dairy Congress, London, England:

Delegate

R. E. Hodgson, Director, Animal Husbandry Research Division, ARS, U. S. Department of Agriculture, Beltsville, Maryland

Vice-Delegate

H. L. Forest, Director, Dairy Division, AMS, U. S. Department of Agriculture, Washington, D. C.

Advisors

S. R. Hoover, Assistant Director, Eastern Utilization Research and Development Division, ARS, U. S. Department of Agriculture, Washington, D. C.

David L. Hume, Director, Dairy and Poultry Division,
FAS, U. S. Department of Agriculture, Washington,
D. C.

Robert Anderson, Agricultural Attache, U. S. Embassy,
London, England

E. M. Norton, Secretary, National Milk Producers
Federation, 1731 Eye St. N.W., Washington 6, D. C.

Richard J. Werner, Executive Director, Milk Industry
Foundation, 1145 19th St. N.W., Washington 6, D. C.

D. H. Jacobsen, Research Director, American Dairy
Association, 20 N. Wacker Drive, Chicago 6, Ill.

Milton Hult, President, National Dairy Council, 111
N. Canal St., Chicago, Ill.

Samuel T. Coulter, Professor, Department of Dairy
Husbandry, University of Minnesota, St. Paul, Minn.

Donald E. Hirsch, Assistant Director, Commodity Divi-
sion, American Farm Bureau Federation, 2300 Merchan-
dise Mart, Chicago 54, Ill.

I. Walker Rupel, Head, Dairy Science Department, Texas
A & M College, College Station, Texas

Charles Figy, Assistant to the Secretary of Agriculture,
U. S. Department of Agriculture, Washington, D. C.

Kenneth L. Turk, Head, Department of Animal Husbandry,
Cornell University, Ithaca, N. Y.

Arnold H. Johnson, President, National Dairy Research
Laboratories, Inc., Oakdale, Long Island, N. Y.

Irving Wisch, President, Milk Handlers and Processors
Association, 105 Hudson St., New York, N. Y.

Clarence A. Michel, President, Edgemar Farms, 346 Rose
Ave., Venice, Calif.

Dwight M. Seath, Head, Dairy Section, University of
Kentucky, Lexington, Ky.

Ira A. Gould, Head, Department of Dairy Technology,
Ohio State University, Columbus, Ohio

G. Malcolm Trout, Professor, Dairy Department, Michigan
State University, East Lansing, Michigan

Eugene L. Jack, Head, Dairy Industry Department, University
of California, Davis, Calif.

Elmer W. Hallowell, Assistant Agricultural Attache, American
Embassy, London, England

O. E. Reed, 4927 - 30th Place N.W., Washington, D. C.

All members except Dr. O. E. Reed were in attendance at the
several sessions of the Congress meetings.

Individuals from the United States of America Who
Attended the Fifteenth International Dairy Congress

In addition to the official delegates, a number of representatives
of State and commercial dairy organizations and State Agricultural
Colleges and State Experiment Stations and individuals attended the Con-
gress. The following is a list of those individuals who were registered
at the Congress up to May 31, 1959:

Miss M. Buckland, c/o Col. R. J. Werner
Prof. H. E. Calbert, Department of Dairy & Food Industries,
University of Wisconsin, Madison 6, Wisconsin
D. G. Colony, 44 Garden Street, Everett 49, Mass.
Mrs. M. Coulter, St. Paul, Minn.
Lt. Col. J. C. Cressler, U. S. Army (Medical), 7 North Audley
Street, London, W.1, England
Dr. P. R. Elliker, Dept. of Bacteriology, Oregon State
College, Corvallis, Oregon
Prof. F. Ely, Ohio State University, Columbus 10, Ohio
Mrs. D. H. Ely
H. P. Faust, 2280 Niagara Street, Buffalo 7, New York
Mrs. H. L. Forest, Washington, D. C.
Prof. N. S. Golding, Dairy Science Dept., Washington
State College, Pullman, Wash.
T. K. Hamilton, 315 Graham Avenue, Columbus 3, Ohio
Mrs. Y. F. Hamilton
C. N. Hansen, Beatrice Foods Co., 120 S. La Salle Street,
Chicago, Ill.
Mrs. B. Hansen

Mrs. David L. Hume, Washington, D. C.
G. H. C. Haugaard, National Dairy Research Laboratory, Oakdale,
L. I., N. Y.
Mrs. K. Haugaard
J. F. Hazelton, Beatrice Foods Co., 120 S. La Salle Street,
Chicago, Illinois
Mrs. I. Hazelton
Mrs. E. Hodgson, College Park, Md.
Mrs. K. L. Hoover
G. A. Houran, De Laval Separator Co., Poughkeepsie, N. Y.
Mrs. R. Hult, Chicago, Ill.
Mrs. S. T. Jack, Davis, Calif.
Mrs. V. Jacobsen, Chicago, Ill.
Mrs. T. H. Johnson, Oakdale, L. I., N. Y.
D. A. Johnson
D. W. Jolly, Modern Veterinary Practice, 18 West Micheltorena,
Santa Barbara, Calif.
J. A. Knudsen, 1015 Crest Drive, Creston, Iowa
Mrs. H. Knudsen
R. B. Kocher, 1223 Wellesley Road, Madison 5, Wis.
Dr. F. Kosikowski, Department of Dairy Industry, Cornell
University, Ithaca, N. Y.
Mrs. A. Kosikowski
Miss F. Kosikowski
Dr. J. H. McGlumphy, Van Ameringen-Haebler, Inc., Elizabeth, N. J.
Mrs. J. H. McGlumphy
A. C. Menzies, A.P.V. Co., Inc., 137 Arthur Street, Buffalo 7, N. Y.
Mrs. B. Michel, Venice, Calif.
Prof. J. P. Mixner, Rutgers University, Dairy Research Farm,
Sussex, N. J.
Mrs. E. O. Mixner
Mrs. E. M. Norton, Washington, D. C.
Prof. J. C. Olson, Department of Dairy Husbandry, University
of Minnesota, St. Paul, Minn.
Mrs. I. P. Olson
F. L. Pellissier, Jr., 9021 E. Beverly Road, Pico Rivera,
Calif.
Mrs. L. F. Pellissier
R. B. Price, Price's Creameries, Inc., El Paso, Texas
Prof. W. H. E. Reid, Department of Dairy Husbandry, University
of Missouri, Columbia, Missouri
Mrs. R. A. Reid
Mrs. C. B. Rupel, College Station, Texas
Mrs. M. M. Seath, Lexington, Kentucky
Dr. J. C. Sluder, Nestle Co., Inc., 100 Bloomingdale Road,
White Plains, N. Y.
Dr. J. F. Sykes, Department of Agriculture, Beltsville, Md.
Mrs. J. K. Sykes

Mrs. G. M. Trout, East Lansing, Michigan
Dr. I. S. Verma, Department of Agricultural Chemistry,
University of Missouri, Columbia, Missouri
R. Waltz, Consolidated Dairy Products Co., Seattle 99, Wash.
Mrs. R. Waltz
Mrs. G. Werner, Washington, D. C.
D. F. West, 7000B Crafton Avenue, Bell, Calif.
L. M. Williams, Triangle Grain Co., P. O. Box 667, Bellflower,
Calif.
Mrs. M. L. Williams

COUNTRIES PARTICIPATING IN THE FIFTEENTH
INTERNATIONAL DAIRY CONGRESS

The following countries, Colonies, States, and Organizations
were represented at the Fifteenth International Dairy Congress:

<u>Country^{1/}</u>	<u>Registered Participants^{2/}</u>	<u>Country^{1/}</u>	<u>Registered Participants^{2/}</u>
Argentina	1	Jordan	1
Australia*	36	Kenya	11
Austria*	55	Luxemburg*	6
Belgium*	46	Malta	1
Brazil	1	Mexico	4
Bulgaria*	3	Netherlands*	152
Canada*	20	New Zealand*	28
Ceylon	1	Nigeria	2
Chile	2	Norway*	39
Cyprus	1	Peru	1
Czechoslovakia	4	Poland*	15
Denmark*	179	Portugal	5
Egypt	1	South Africa	7
Finland*	36	Southern Rhodesia	2
France*	163	Spain*	42
Republic of West Germany*	301	Sweden*	92
Ghana	2	Switzerland*	75
Greece	7	Syria	1
Iceland	4	Tanganyika	2
India*	3	Tunisia	1
Indonesia	1	Turkey	7
Iran	1	United Kingdom*	835
Ireland*	65	United States of America	77
Israel*	7	U.S.S.R.*	54
Italy*	100	Venezuela	3
Japan*	9	Yugoslavia	9

1/ Asterisk indicates country is member of International Dairy Federation.

2/ Registration as of May 31, 1959.

Organization of the Fifteenth International Dairy Congress

The Fifteenth International Dairy Congress was organized by the United Kingdom Dairy Association as the National Committee of the International Dairy Federation. H.R.H. Prince Philip was President and Sir Thomas Peacock, Chairman, United Kingdom Dairy Association, was Chairman of the Congress. The following individuals served as Vice Presidents:

His Grace The Duke of Norfolk, K.G., P.C., G.C.V.O.

The Rt. Hon. The Earl De La Warr, P.C., G.B.E.

The Rt. Hon. The Earl of Iveagh, K.G., C.B., C.M.G.

The Rt. Hon. Selwyn Lloyd, C.B.E., T.D., Q.C., M.P.

Secretary of State for Foreign Affairs

The Rt. Hon. John Maclay, C.M.G., M.P.

Secretary of State for Scotland

The Rt. Hon. John Hare, O.B.E., M.P.

Minister of Agriculture, Fisheries, and Food

The Rt. Hon. Derek Walker-Smith, T.D., Q.C., M.P.

Minister of Health

The Rt. Hon. The Rev. R. Moore, M.P.

Minister of Agriculture for Northern Ireland

Sir Sidney Harold Gillett, M.C.

Lord Mayor of London

Professor Paul Kastli

President of the International Dairy Federation

The Rt. Hon. Lord Digby, D.S.O., M.C., T.D.

President of the Royal Agricultural Society of England

The Rt. Hon. Lord Netherthorpe

President of the National Farmers' Union

The organization of the 41 member national committee was as follows:

Honorary Secretary, Leslie S. Wheeler

Organizing Secretary, Dr. A. W. Marsden

Executive Committee, Sir Thomas Peacock, Chairman

Finance Committee, A. G. Peddie, Chairman

Reception and Hospitality Committee, E. Capstick, Chairman

Excursions Committee, F. Procter, Chairman

Exhibition Committee, J. R. Rowling, Chairman

Program Committee, H. D. Kay, Chairman

Press and Policy Committee, W. B. V. H. Gates, Chairman

During the meetings the Secretariat was at Church House.

The Congress headquarters were in Church House and many of the technical sessions were held there. Other sessions were held in nearby Central Hall where also was housed an excellent dairy industry exhibit and an auditorium where there were regular showings of films on dairy subjects selected from countries throughout the world. The opening session was held in Royal Albert Hall.

The facilities and services available were an ideal environment for the meetings. Sessions were held in the mornings and study tours to dairy plants, farms and educational institutions were held in the afternoon. The evenings were given over to a number of excellent social functions. Post Congress tours to various parts of England, Scotland and North Ireland were available to members attending the Congress. The Organizing Committee performed excellently a most difficult task of putting on this meeting without a flaw.

THE TECHNICAL PROGRAM

The Congress was organized for the purpose of presenting and discussing technical, economic and trade information on dairying throughout the world with the objective of improving its efficiency and effectiveness in providing food to the people. There were no committees of the Congress itself except for the officers of the various sections who formulate statements and recommendations for the consideration of the Congress members assembled.

The official languages of the Congress were English, French and German. Simultaneous translation in these languages of the lectures, reports and discussions was available at all sessions.

The meetings were organized into an opening and closing general session, two general lectures and a symposium, and 22 subject matter sessions within the six sections. The opening session of the Congress was a most colorful ceremony held in the Royal Albert Hall. H.R.M. Queen Elizabeth, the Queen Mother, was presented by the Chairman, Sir Thomas Peacock, and she formally opened the Congress and addressed the membership assembled. Mr. John Hare, Minister of Agriculture, Fisheries and Food, Great Britain, and Professor Paul Kastli, President of the International Dairy Federation, also addressed the Congress in its opening session.

The program schedule is as follows:

1. Opening Ceremony - Sir Thomas Peacock, Congress Chairman, presiding
2. Section I - Milk Production - Sir James B. Douglas, Great Britain, Chairman
 - (a) Physiological Aspects - recent developments and their application
 - (b) New knowledge of factors affecting milk quality
 - (c) Problem of warm countries
3. Section II - Processing and Distribution of Milk for Liquid Consumption - S. Clifford, Great Britain, Chairman
 - (a) Newer methods for treatment of milk
 - (b) Technical problems of distribution
4. Section III - Milk Products - Dr. S. Overgaard, Denmark, Chairman
 - (a) Recent developments in manufacturing, storage and packaging of cheese (two sessions)
 - (b) Recent developments in manufacturing, storage and packaging of cream, butter and ghee
 - (c) Recent developments in manufacturing, storage and packaging of dried milk
 - (d) Ice cream as a dairy product
 - (e) Utilization and disposal of by-products
5. Section IV - Dairy Machinery Equipment and Buildings - E. J. de Landtsheer, Belgium, Chairman
 - (a) Recent developments relating to milk production, including transport from the farm
 - (b) Recent developments relating to milk processing
 - (c) Recent developments relating to the manufacture of milk products
6. Section V - Analytical Methods and Control - Prof. H. Mulder, Netherlands, Chairman
 - (a) Chemical and bacteriological methods for examination of milk and dairy products (two sessions)
 - (b) Laboratory control of milk production, processing and manufacture
7. Section VI - Marketing and Sales - W. Ljung, Sweden, Chairman
 - (a) Organization and methods of marketing
 - (b) Consumption levels of milk and dairy products
 - (c) Publicity and sales promotion

8. Congress Lecture - Prof. P. Kastli, Switzerland - Chairman
Efficiency and Self Sufficiency in British Dairy Farming
Prof. H. G. Sanders, Ministry of Agriculture, Food and
Fisheries, Great Britain
9. Congress Lecture - J. J. Walker, New Zealand, Chairman
Milk and Milk Products in Underdeveloped Countries
Prof. H. D. Kay, National Institute of Research in
Dairying, Great Britain (retired)
10. Symposium - Prof. A. M. Guerault, Vice President, International
Dairy Federation, France, Chairman
The Economic Outlook for Dairying
Speakers: P. Koch Henriksen, Denmark
Dr. R. E. Hodgson, United States
J. L. Davies, Great Britain
11. Closing Session - Sir Thomas Peacock, Congress Chairman
presiding

A subject vice chairman and a secretary were assigned to conduct the presentation of the material in each subject of the six sections. A general reporter was assigned to each subject in the various sections. He prepared a brief review of the subject under discussion, based on a study of the contributions and on his personal experience, which included a summary of the most important developments during the past few years and concluded with recommendations. At least two discussion leaders were assigned to each subject to open the discussion from the floor following the general report. These discussions usually were thorough and interesting. The discussions, along with those of the discussers and the reports of the reporters, were fully documented along with the papers, and are included in the printed proceedings of the Congress.

In addition to the addresses given at the general opening session, the conference lectures and the symposium, there were 380 scientific and technical papers on the various aspects of dairying that are included in more than 2500 printed pages of the official proceedings.

Participation of Specialists from the United States in Technical Program

Several delegates and members served in different capacities during the session programs and discussions. This activity is summarized as follows:

1. Dr. J. P. Mixner - New Jersey - Discusser, Section I,
Subject a

2. Dr. G. M. Trout - Michigan - Rapporteur, Section II,
Subject b
3. Dr. S. T. Coulter - Minnesota - Vice Chairman,
Section III, Subject a-2
4. Dr. E. L. Jack - California - Vice Chairman, Section
IV, Subject a
5. Mr. G. A. Houran - New York - Discusser, Section
IV, Subject c

In addition, various delegates and members freely and frequently entered into discussions of various subjects during the discussion periods. In this way they were able to bring to the listeners the knowledge and experiences gained in this country.

The U. S. Embassy, and especially the Agricultural Attache, Mr. Robert N. Anderson, and Assistant Agricultural Attache, Mr. Elmer W. Hallowell, and their staff were of invaluable assistance to the delegation members in connection with their participation in the Congress program. The Embassy made available for the use of the delegation a conference room and clerical help. Meetings were held by the delegation before the Congress opened and twice during the course of the meetings for the purpose of planning and guiding the activities of the delegates to obtain the most effective coverage and participation.

Delegation Luncheon

On Wednesday, July 1, 1959, the United States delegation put on a buffet luncheon in honor of the officers of the British Organizing Committee and of the International Dairy Federation. The luncheon was held at the Columbia Club dining room. The delegates received financial assistance from the Department of State, International Conferences Division, and important help from the U. S. Embassy officials, especially the Agricultural Attache and Assistant Agricultural Attache in London. This was an informal meeting with no speeches save a word of greeting from the delegation chairman in which he thanked the Organizing Committee of the British Government and the Federation for inviting the United States to have a delegation attend the Congress and responses from representatives from each of these bodies. This luncheon provided excellent opportunity for the delegates to get acquainted with our guests and to exchange ideas on items of mutual interest.

The names of the people, other than the U. S. delegates, who were invited to this luncheon are as follows:

British National Dairy Association (Organizing Committee)

Sir Thomas Peacock, Chairman
Dr. A. W. Marsden, Organizing Secretary
Leslie Wheeler, Honorary Treasurer
A. G. Peddie, Chairman, Finance Committee
E. Capstick, Chairman, Reception and Hospitality Committee
F. Procter, Chairman, Excursion Committee
J. Ridley Rowling, Chairman, Exhibit Committee
Prof. H. D. Kay, Chairman, Program Committee
Lt. Col. W. B. V. H. Gates, Chairman, Press and Publicity Committee
H. S. Hall, Chairman, Subcommittee on Registration and Admission
J. Matthews, Chairman, Committee on Social Activities
Sir Charles Taylor, Chairman, Committee on Hotels and Catering
J. A. B. Smith, Deputy Chairman, Program Committee
A. L. Provan, Chairman, Editorial Subcommittee
F. C. White, Chairman, Committee on Technical Films
S. Clifford, Member, Management Committee
T. J. Drakeley, Member, Management Committee
J. L. Davies, Member, Management Committee
R. G. Good, Member, Management Committee
W. R. Trehane, Member, Management Committee

International Dairy Federation

Dr. P. Kastli, President
Professor A. M. Guerault, First Vice President
J. J. Walker, Third Vice President
Prof. H. Mulder, Chairman, Commission of Studies
F. G. Golliez, Secretary General

Ministry of Agriculture, Fisheries and Food and Others

The Rt. Hon. John Hare, Minister
Sir William Slater, President, Agricultural Research Council
Prof. G. H. Sanders, Secretary, Agricultural Research Council
J. Godher, Ministry Representative to Parliament

American Embassy

Robert A. Anderson, Agricultural Attaché
Elmer W. Hallowell, Assistant Agricultural Attaché

Evening Receptions and Entertainments for Delegates and Members

An appropriate and high class social event was presented each night during the Congress meetings.

On June 29 the National Dairy Association gave a reception at the Rembrandt Hotel for delegates and members from all English speaking countries.

On June 29 the Official Reception by Her Majesty's Government for official delegates appointed by governments, invited participants on the Congress program, officers of the International Dairy Federation and members of the Congress Organizing Committee was held at Lancaster House, London. The Right Honorable John Hare, Minister of Agriculture, Fisheries and Food, and Madame Hare were hosts at this function.

On June 30 the Official Reception by the Lord Mayor of London for official delegates appointed by governments, invited participants on the Congress program, officers of the International Dairy Federation and members of the Organizing Committee was held at the Guild Hall, London. The Right Honorable The Lord Mayor, Sir Sidney Harold Gillett, and the Lady Mayoress were hosts.

On June 30 an informal reception was held at the Royal Albert Hall for all members attending the Congress.

On July 1 an International Celebrity Concert of the popular classical music was presented at the Royal Festival Hall for all members attending the Congress.

On July 2 at the Royal Albert Hall the Official Congress Ball was held for all members attending the Congress.

On July 3 the Official Congress Banquet was held at Grosvenor House for all members attending the Congress.

Each of these social events was outstanding and the programs were deeply appreciated by those who were privileged to participate in them.

Meeting with United States Ambassador Whitney

On July 2, the Honorable Jock Whitney, U. S. Ambassador, American Embassy, London, received a small Committee of the United States Delegation to the Congress. This was a very enjoyable hour spent in visiting with the Ambassador about the Congress meetings

and the dairy industry and agriculture in general. The delegates appreciated the honor to meet with the Ambassador and for his giving so much time from his busy schedule.

Tours and Excursions

Tours and excursions were made available to members attending the Congress in the afternoons during the five days of the meetings and during a two-week period following the meetings. In all there were 43 tours available during the meetings and 6 post Congress tours. These tours included visits to facilities of the Ministry of Agriculture, Food and Fisheries; the Milk Marketing Board; numerous dairy plants; colleges and institutes; farms; factories; castles; government buildings and shrines; etc. A number of the post Congress tours took participants to all parts of England and into Scotland and North Ireland. Many of the Americans attending the Congress participated in these tours and excursions.

Ladies' Program

An organized program was drawn up by a Ladies Subcommittee for the ladies accompanying the members. This included 10 different visits such as receptions, teas, beauty culture, fashion displays and flower demonstrations. This was a popular program for the ladies.

United Kingdom Dairy Information Center

An information center was available at Central Hall where members could obtain information on all United Kingdom dairy matters. Information was available on breeds of British cattle, methods of producing, manufacturing, distributing and marketing milk and dairy products, publications concerning dairying, and on dairy equipment and supplies. Adjacent to this was an auditorium where film on dairying of international interest was shown.

A milk bar was available where members could enjoy ice cream and a variety of milk drinks.

The International Dairy Congress Sessions

The Opening Session of the Congress

The Fifteenth International Dairy Congress was opened at a general session in the Royal Albert Hall at 10.30 a.m. June 29, 1959, Sir Thomas Peacock, Chairman of the British National Dairy Committee, presiding. This opening session was honored by the presence of

H.R.M. Queen Elizabeth the Queen Mother. In her address opening the sessions she stated that the dairy industry is one of the oldest forms of industry in the world. She then referred to the value of milk in the diet for babies and people of all ages. Her message included the hope that the results of the Congress deliberations will be to encourage international cooperation and thereby insure the distribution of the very necessary food in places where most needed.

The Right Honorable John Hare, Minister of Agriculture, Fisheries and Food, briefly addressed the assemblage of nearly 3,000 attendants with a cordial welcome, a wish for a successful meeting and a challenge for dairy workers throughout the world to increase their efforts to make their dairy industries more progressive and efficient, to do more to educate the people of the nutritional value of milk and to do a better job of marketing and distribution.

Dr. P. Kastli, President of the International Dairy Federation, in surveying the aims of the Congress, indicated that the meetings give an opportunity to take stock of the present position of the industry, to exchange ideas and technical information and in a measure to chart the road ahead. He indicated that the need for improvement in operational procedure and technical improvements is great even in highly developed dairy countries and even more so in less well developed areas. Such improvements bring about greater economy and better use of milk and milk products.

In his opening remarks, Sir Thomas Peacock reminded the delegates and members that the primary purpose of the meeting was to bring together the technical leaders of the industry from many countries to discuss, to debate and to get to know one another and the problems confronting the dairy industry of the world better. He stated that few people will doubt that the dairy industry has a big part to play in improving human diets throughout the world in future years. He alluded to the marked progress that had been made in the British dairy industry since the last Congress was held in England 31 years ago.

The Congress Lectures and Symposium

1. Efficiency and Self Sufficiency of British Dairy Farming -
Prof. H. G. Sanders - United Kingdom Ministry of
Agriculture, Fisheries and Food.

In reviewing the dairy industry in the British Isles and the progress it has made in the last two decades, Prof. Sanders stated that the farming industry remains one of small farms. Herd size averages 17 in England, 34 in Scotland and 11 in North Ireland. The output of milk in 1958 amounted to over 2 billion gallons, a 71 percent increase over 20 years ago.

He indicated that great progress had been made in improving

production per cow, in labor efficiency, in feeding and breeding methods, in introducing mechanization, in improving the health of cattle and the quality of milk and in marketing. He indicated that while labor costs have increased 5 times and feed cost 4 times, the prices received for milk by the farmer increased only 3 times what it was in 1938.

Prof. Sanders alluded to the need for greater research attention to the compositional quality of milk, particularly to increase the solids-not-fat content. Since three-fourths of the milk produced is used for liquid consumption, we need to determine the ideal composition of milk from the standpoint of human nutrition.

2. Milk and Milk Products in Underdeveloped Countries - Prof. H. D. Kay, Director (emeritus) - National Institute for Research in Dairying.

Dr. Kay stated that countries representing from 70-80 percent of the world's population are underdeveloped from the dairying standpoint. This means that dairy farming and technology are generally backward and many people, especially children, are undernourished. In spite of this, the population in these areas is increasing rapidly. He concluded that the conditions would grow worse unless very positive and determined steps were taken in the next few years to substantially increase not only milk production but production of other foods. Reference was made to the importance of FAO's program slogan of "Free the World from Hunger Year 1963" for focusing attention to increasing food production in underdeveloped countries. Dr. Kay stressed the following points that are important in this problem: (1) Production and consumption of milk are increased, but also production and consumption of other foods must be increased at the rate of about 3 percent per year; (2) large and increasing quantities of food are purchased from abroad; (3) large quantities of food are received as gifts from countries with surpluses; (4) the birth rates in the underdeveloped countries reduced. He took a rather dim view that any combination of these might be effective soon enough to make important inroads on the conditions that exist.

Dr. Kay alluded to the important work of UNICEF and other agencies in encouraging milk production, making more effective use of what is available and distributing milk brought in from surplus countries.

3. The Economic Outlook for Dairying - (Symposium)

a. P. Koch Henriksen, Denmark

In his paper, Mr. Henriksen indicated that while the present outlook for dairying was somewhat gloomy, taking a long term view, the outlook gives grounds for reasonable optimism. He stated the

following reasons for this point of view:

"Even if there are a lot of problems affecting the economic conditions of the world dairy industry at present, I think, nevertheless, that we may be reasonably optimistic if we take a long view. I want to mention three important reasons for this opinion.

In the first place, the purchasing power is rapidly increasing in most European, North American and Australian countries and also - if still rather slowly - in tropical countries. This will inevitably result in a greater consumption of specialties and better qualities of foodstuffs. In this respect we can refer to the increasing cheese consumption in many advanced countries and the heavy increase in the use of dried milk, especially in some tropical countries in recent years. At present also good butter is demanded in increasing quantities in several countries. No doubt many customers were brought back during the price slump last year. To some extent they are retained as satisfied butter consumers at the present higher price levels.

In the second place, the increase in population is significant everywhere, also among the large scale consumers in advanced countries. In all probability population figures will grow faster than output figures in dairying. The surplus food problem in West Europe and North America may therefore be considered of a temporary character. Thus it is predicted that in 10-15 years a country like the U. S. may have to import dairy products. Other countries - today having marginal surpluses - may be importers too. Such a development must absolutely benefit domestic dairy industries, and also dairying in such countries as will continuously be able to place relatively big quantities of milk products at the disposal of the densely populated countries.

And in the third place we have a right to hope that the economic cooperation between the various nations will gradually and to a larger extent foster free international trade and sound competition. The new European market arrangements may add to this, provided they are extended or made more flexible. Will it be too optimistic to foresee that in the not too distant future effective dairy production will again obtain a preference in the world housekeeping? No doubt the increasing demand for food and the need for economic international division of labour and production will promote such a development.

Although the present picture is not a rosy one, let us not lose faith in our dairy industries, let us maintain our traditions and let us be allowed to believe that honest efforts in our field will bring their own reward in the long run."

b. Dr. R. E. Hodgson, United States

The need to make high quality milk and milk products available at advantageous prices in relation to other foods was a factor seen by Dr. Hodgson as having an important bearing on the future of the dairy industry in all countries. Changing food habits and buyer discrimination, weight consciousness, and availability of increasing kinds of foods were factors in determining how much milk and dairy products people use.

Total milk production and milk yield per cow has increased steadily and will increase in the future according to needs and income opportunities to farmers. Dairy farming has been undergoing revolutionary changes, herd sizes are increasing and the health, nutrition and management of cows are improving, resulting in greater output per unit of input. He concluded by stating:

"The future is good for the dairy cow and the man who keeps cows as a means of making a living. The dairy farmer will need to exhibit wise judgment to improve efficiency and keep ahead of competition in the market place. He will need to (a) take advantage of new developments as quickly as possible, limited only by his resources and ability to make them pay; (b) develop continually higher producing and more efficient cows that produce the type of milk best suited to processing and consumer needs and desires; (c) do a better job of marketing and convincing the consumer to use more milk and milk products. As a result of advancing technology in dairying, fewer and fewer farms and farmers can be expected to produce more and more of the milk supply."

c. J. L. Davies, United Kingdom

Mr. Davies reviewed the development of dairy farming and milk marketing in the United Kingdom over the last 25 years indicating that about three-fourths of the milk was sold for liquid consumption. He indicated that great advances have taken place in improving quality and acceptability of liquid milk and consumers have responded by increasing their consumption. He indicated concern for the future in the kind of milk that is made available to the consumer and cautioned about processing and marketing treatments that render milk less like it is as it comes from the cow. He indicated that the more that milk is treated in processing and marketing the more the cost increases, thus reducing returns to the producer. Mr. Davies concluded with the statement that:

"The produce of the dairy cow will become relatively more expensive in the future - I am tempted to add the familiar economist's cover "other things being equal" - prompts me to think of the point of view or the interest from which to judge these affairs. I have spoken mainly of conditions in this country and I confess that my point of view and expectations are shaped primarily by the interests of milk producers. We have a wonderful market, and we must look after it, which means offering to the consumer continuously a fine product,

well presented and a good buy. The great dairy processing and manufacturing industries which have been organized in many countries represented here today have a great and ever widening part to play in the future. The produce of that wonderful animal, the dairy cow, will become, it seems to me, even more widely appreciated and will play an even greater and more efficient part in the human diet. There will naturally be important changes, but I believe basically the liquid milk service will remain supreme, and there should be an increasing call for dairy products in one form or another. The outlook for dairying, as far as I foresee, should give confidence to all who are involved in it."

Technical Sessions

The 380 papers included in the program are published in four volumes of the proceedings. These volumes were available to registered members before the opening of the Congress. They were reviewed by rapporteurs followed by a general discussion of the topics and papers included in each subject. The report of these discussions, as well as the lecture and symposium papers and an account of the opening and closing sessions, will be included in the Fifth Volume of the Proceedings which will be published early in 1960. Copies of the complete proceedings are available from Dr. A. W. Marsden, Organizing Secretary, Fifteenth International Dairy Congress, 86 Brook Street, London, W.1, England.

The following is a brief account of the general discussion of some of the items on the technical program.

Milk Production: British workers recently have demonstrated with the use of radioactive labeled carbon and phosphorus that the precursors of both casein and lactoglobulin of milk are the amino acids and inorganic phosphorus of blood plasma. This and other work reported on milk fat secretion, mammary gland resorption, neural control of mammary gland activity, milk ejection and frequency of milking by researchers is rapidly adding to our knowledge and better understanding of the complex physiological aspects of milk secretion.

Throughout the world, seasonal variation in production and therefore supply in marketing areas are pronounced, thus making quality control, processing and marketing difficult. In many areas, better bacteriological quality of milk and the development of methods for improvement are badly needed. The problem of adaptability of cows to warm climates and the management procedures that may be useful in providing greater comfort to producing animals under these conditions are receiving much research attention.

Milk Quality: Much attention is being given by scientists in many countries to the solids-not-fat and the protein content of milk. Improved and less expensive rapid methods of analysis have been devised.

In the Netherlands they find these constituents more affected by heredity than by environment. Some attention is being given to paying for milk on the content of these constituents. Milk from cows of higher yields was found to have lower contents of total solids, butterfat, calcium, casein and a higher content of albumin. Inhibitory substances active against some types of bacteria were reported to be found in milk. Rapid progress is being made in several European countries to eradicate tuberculosis from herds. Programs for the elimination of mastitis are under way in many countries. The importance of prompt cooling of milk to 17° C. after it is drawn is stressed in all areas for maintaining high quality. The problem of cleaning and sanitizing dairy equipment on the farm received considerable attention. A new British immersion method using a lye solution was described as being very effective.

Newer Methods for Treatment of Milk: Numerous new approaches have been under investigation for the treatment of milk to maintain and improve quality and acceptability. Among the investigations reported were studies of ultrasonic waves, deep freezing, ultra violet light, preservatives, antibiotics, centrifugation, radiation treatment and treatment with high temperature.

It seems clear that the most development towards the production of biologically stable milk of satisfactory flavor will be found in the field of ultra high temperature, short time flow sterilizing, followed by filling into retail packages without recontamination. Sterility of the heat-treated milk appears to be achieved for practical purposes without serious loss of flavor or nutritive value at temperatures in the region of 130° - 140° C. (266° - 284° F.) for 2 seconds, provided that the bacteriological quality of the raw milk meets certain standards.

The greatest difficulties lie in the last step of filling. Whether these are to be overcome by the use of antibiotics, together with a measure of asepsis or by asepsis alone, is still to be decided, and will require further collaboration between bacteriologists, engineers and technologists. It would appear that heat treatment of the filled container will be eliminated as soon as technical advances permit. It may be that the cost of aseptic filling of sterile milk will demand that the milk be preconcentrated. On the other hand, its successful accomplishment would eliminate the need for refrigeration of bottled milk and affect profoundly methods of distribution.

Milk Processing and Distribution: Among other major changes in milk distribution are (1) every-other-day raw milk pick-up; (2) clarification and homogenization of virtually all beverage milk; (3) shifts to 2-quart containers; (4) wider use of amber glass milk bottles; (5) widespread acceptance of paper containers; (6) supermarkets store sales of paper cartoned milk; (7) vacuum treatment of pasteurized milk to void milk with feed flavors; and (8) protection of milk from light. The beverage quality of milk throughout the United States is remarkably uniform. Virtually all milk sold in the cities is pasteurized. Some States have

compulsory statewide pasteurization. Much attention is given in some sections to sterilized concentrated milk, but percentagewise this product is not as yet a factor in consumption or distribution.

Dairy plants are rapidly changing to automation throughout to meet the high cost of labor. Home delivery is giving ground to supermarket sales. Some plants have sold or are in the process of selling their routes to the milk deliveryman, thus setting him up in a small milk-sales business of his own, which should be an incentive to increased sales.

Attention is directed more and more towards the safeguarding of the good flavor of beverage milk. Studies indicate that most consumers drink milk because they like it.

Recent Developments in Cheese: Considerable progress in the mechanization of cheese making was reported, especially from the United States, Australia, and New Zealand. The USDA described methods which eliminated the hand labor involved in turning blocks of curd as well as a method for full mechanization of Cheddar cheese manufacture. British researchers reported on a method for continuous production of starter required for hard cheese making for large scale operations. It was reported that one of the serious troubles in modern cheese manufacture is the presence of penicillin or other antibiotics as residue in milk. This not only affects the processing of milk to cheese but also may have important public health implications. Important developments concerning the surface treatment of cheese for storage and packaging may be in the offing. A new viewpoint is the use of antifungal antibiotics. Much study, especially by public health authorities, is required to evaluate their usefulness.

Butter: A conclusion drawn from some of the papers presented at this Congress, and also from experience gained in Denmark and other butter producing countries, suggested that butter manufacturers all over the world should aim, to an increasing extent, at manufacturing and packaging butter in such a way that it does not contain droplets of moisture which are large enough to permit bacteriological growth and consequently a reduction in keeping quality.

As a practical device in connection with this point, Danish scientists have invented an indicator paper which when applied to the freshly cut surface of the butter, gives the practical producer sufficient information regarding the moisture distribution in the butter.

Scientific and technical research in the dairy industry should be more concerned with the properties of milk fat and its utilization in the manufacture of the traditional dairy products such as butter, ghee and butter oil, but there should also be further research into the development of new dairy products where milk fat is incorporated as the chief ingredient. It is suggested that The International Dairy Federation form a permanent section, which could be named the "Butter Section", which would coordinate scientific and technical research

work on milk fat and its utilization in the dairy industry.

Dry Milk: Much progress is being made in improving the quality and keepability of dry milk and in its packaging. One problem of concern is the control of certain types of bacteria which may produce harmful toxins. Research was reported as to the origin of such toxins and how best to avoid their occurrence. It was reported that there may be characteristic strains of toxin producing bacteria for each factory and that contamination most likely arises in the final stages of manufacture.

Byproducts of Milk: No common conclusion can be drawn from the contributions on the subject of the general utilization of milk and byproducts. However, in Czechoslovakia or India where the level of milk production is comparatively low, milk byproducts should be utilized as much as possible for human nutrition, and in countries where the production tends to be in excess of demand, some of the surplus may be utilized for non-food purposes. The situation therefore depends upon the different conditions in different countries.

Studies on utilization as cultured milk are numerous, but only two contributions have been made to this Congress, one about the growth of kefir and the other about the food sanitation of kefir. Cultured milk such as yoghurt is still being popularized more and more and new products may appear in the future.

The value of casein as an industrial material may become less as a result of the development and progress of synthetic products. At this time, the efforts made for the improvement of casein plastics or for the invention of new products such as a meat-like casein food may be very significant for the utilization of milk byproducts.

Owing to the high moisture content and the poor keeping quality of whey, the simple and economical utilization of whey is very difficult. Thus various studies on this byproduct have been made but few have been carried into practical use. From the contributions to this Congress concerning cheese whey, methods for making lactose or calcium lactate and making yeast, no conclusion can be drawn from the small number of results. In particular, suitable methods should be chosen according to the local conditions of each country or factory.

There was no contribution on the disposal of dairy waste, including whey. This problem requires further discussion.

Bulk Milk Handling: Five contributions dealt with bulk farm tanks for storing milk on the farm.

When milking is done by machine and the milk is passed through a closed system to the tank, from which it is conducted through a pipeline to the transport tank, the whole handling of milk up to the dairy

phase forms a closed system. When the dairy thereafter also uses a closed system and packs the milk in closed containers, the whole system from the udder of the cow to the consumers' table is closed. This in itself is not, however, the target when the bulk tank system is adopted instead of the use of milk cans. The main objective is to save labor. Investigations have proved that changing over to the bulk tank system actually means a considerable saving of labor both in the dairy barn and in transportation. The amount of milk per load is greater because the weight of the cans per load is greater than that of the transport tank. As the system has reduced the costs of transportation, making it possible to pay the farmer more for his milk, the method deserves full attention.

However, favorable conditions for the use of this system are not common. Milk producing farms must be, on the average, larger than they usually are, particularly in Europe. They must also be located so that the tank trucks can drive to the dairy barn of every farm and so that it also pays to do it. The system can also be adapted so that a part of the milk is collected by tank trucks and a part transported in cans to the dairy.

It must also be pointed out that the bulk farm tank system eliminates the possibility of organoleptic appraisal and grading of milk at the dairy. This is necessary, particularly for fluid milk and for milk used for cheese making.

British scientists discussed the constructional performance and hygienic specifications for bulk farm tanks in Great Britain.

Three contributions deal with the practical and economic questions involved in the bulk tank system and one contribution examines the changes in the temperature of milk during transportation in a tank.

In the northern countries transportation by portable tanks of about 2,000 liters is commonly used between dairies. They are not insulated because it has been proved that the milk neither warms up noticeably nor freezes during transport even in the coldest weather. The outlet cocks are also constructed so that they do not freeze. For long distance transportation it is, however, evidently necessary to use thermal insulation or insulating covers.

The present tendency in milk transportation is evidently the adaptation of different systems under different conditions. There is every reason to develop labor-saving methods further. New systems suitable for small farms are not yet to be seen. The use of milk cans is in this case still appropriate.

It remains to be seen whether a tank truck with milk receiving equipment used in sparsely populated areas, or the "milking patrols"

which also have been experiment with, will offer any labor saving solutions.

As a special solution of the milk transportation problem under exceptional conditions could be mentioned piping the milk directly to the dairy.

Dairy Equipment: It is generally known that nowadays stainless steel is employed for all machines to an ever increasing degree. Copper and copper-alloys, tinned or chromium plated, which formerly played an important part, have been practically banished from dairies, so far as they come in contact with milk. All machines and implements that are to be cleaned chemically have to be made of stainless steel. The use of aluminium which has played an important part for containers, tanks, etc., is distinctly declining, but has not yet been entirely abandoned. Also glass enamelled steel, which doubtless represents a most appropriate material for storage tanks, has lost a good deal of ground against stainless steel. Whether the modern plastics are especially well suited for the manufacture of transport and storage tanks is still to be proved in the future. Tinned steel continues to be used for milk cans to a high degree, but is in strong competition with the aluminium alloy cans, less with the stainless steel cans, which are comparatively very expensive. It is not thought that plastic milk cans are much in use.

Comparative tests with untreated and anodized aluminium against various types of milk, cleaning compounds, acids and caustic solutions are discussed, the result being that the untreated material has proved better, at least with the anodized treatment applied by the authors. It is their opinion that an oxidized layer forms on the anodized surfaces which is more porous and loose than with natural oxidation, so that the liquid medium can penetrate more easily and then cause corrosion. It is interesting to note that an English factory manufactures aluminium-alloy milk cans without any additional treatment.

Dairy Processing Operations: During the last few years, developments relating to the manufacture of dairy products have continued. Few have been spectacular; rather has economic necessity furthered a systematic effort to counteract the almost universal trend of increasing costs of men, machines and materials. It is, therefore, in the light of their bearing on potential profitability that this review of developments is prepared.

Broadly speaking, the developments reported have been directed towards one or more of four objectives: (a) the reduction of labor requirements, (b) increased efficiency in the use of fuel, (c) improvements in product quality, (d) increased utilization of equipment.

Although increasing efficiency may reduce the scope for future improvement, it would be wrong to assume that finality in any dairy

product manufacturing process is in sight, but clearly further improvement will become progressively more difficult and, at the same time, possibly less effective. The general lines of development will probably continue as they have in the past, the guiding objectives being those set out in the introduction to this report. It is also probable that the initiative for future developments will rest increasingly with the users of equipment rather than with the manufacturers.

Careful study of factory needs and phasing of the loads from department to department can do much to eliminate wastage of labor. Accurate cost accounts can indicate those operations where improvements may offer the greatest dividends. Most of all, perhaps, the application of work study techniques can measure accurately the loads within the factory, can simplify existing techniques, and can sharply reveal those operations where development is most urgently needed. Already teams of work study engineers have been established in the industry and it is hoped that this process will have been applied on quite a wide scale during the next two years, so that at the next International Dairy Congress actual cost studies of the conditions in manufacturing creameries before and after a work study investigation will have become available. It would be illuminating if such studies could be executed in factories which have been recently equipped, for, if it can be shown that in such establishments work study will amply repay the effort, how much more so must that be true for the older and less efficient factories.

Analytical Methods and Control of Milk: The papers presented in this section show the very wide scope available to workers investigating the chemical and bacteriological composition and properties of milk and dairy products. The application of modern techniques to the study of milk and its products has already yielded valuable information and much more will be obtained during the next decade as these methods are even more commonly used. There is a wide field for the research worker, not only in investigating fundamental problems, but also in the day to day problems of the industry, such as variations and abnormalities in the composition of milk, changes in cheese and butter during ripening, the effect of heat and other treatments of milk on the quality, especially the flavor, of cheese and other manufactured products, packaging of milk and milk products and the influence of storage and other factors.

Internationally agreed reference methods are urgently required so that they can be used in the control of products in international trade and also for use as a yardstick in assessing the reliability of the routine methods used for control of manufacture in each individual country. Some of these methods are already under consideration by the International Dairy Federation and methods for determining butterfat in milk and cheese have already been agreed upon. Taking into account work, such as that put forward in this section, the methods which are most urgently required are those for (a) moisture - on which there seems to be no international agreement, (b) butterfat - on which there is considerable agreement already but where further work is necessary on the suitability of methods for different products and (c) possibly for protein determinations. There is no need for routine tests to be

internationally agreed upon; they are the responsibility of the country concerned in controlling the quality of milk used and the products manufactured from it. There is a need for very close cooperation on an international basis for the development of reference methods.

There is one important question which has not been dealt with in the review given above. Radioactivity in milk and milk products is a serious problem and the need for an international investigation has been stressed with the recommendation that an investigation of this subject should be left in the hands of one or more institutes in each country. Investigation of radioactivity in milk, particularly that due to Strontium 90, must be a government responsibility in each country with the free exchange of results obtained.

Marketing Milk and Dairy Products: Much of the material covered under this subject dealt with marketing dairy products in foreign markets. The economic gulf separating some countries whose people have too little milk from those which produce more than they can sell domestically at prices which support their own economies still persists. Steps already taken by governments and international agencies, while helpful, do not solve the whole problem of marketing facing the world's dairy industry. The present inability of potential consumers to take up available surpluses in other countries may lead to reduced output in well developed dairy countries because of uncertain return prospects from a widely fluctuating world market. On the other hand, certain national pricing policies may stimulate production beyond effective demand.

In regard to marketing fluid milk locally, it is apparent that handling milk in stores has tended to decrease per head consumption compared to home delivery. Increase in price does not appear to reduce sales, except in cases of rapid and large price changes. On the other hand, price reduction does not appear to importantly stimulate sales.

In marketing milk, trends in many countries are towards less frequent home delivery, more store sales, milk marketed in larger units, and more paper cartons.

Factors Affecting Consumption Levels: Milk consumption reacts relatively little to changes in price and income whatever other conditions may obtain. The level of consumption, however, varies greatly between countries, even when a distinction is made between the consumption of the home producer and the lower per head consumption of the non-home producer, a distinction which is unfortunately often still missing in such statistics. The influence of the age structure of the population is also frequently not borne in mind when the milk consumption in individual countries is considered. It is well known in the milk industry that sterilized and condensed milk offer an ever increasing competition to fresh milk; that a rising consumption of butter, cheese and cottage cheese is taking place also at the expense of fresh milk. These facts have not been sufficiently considered up till now. Some of the reports received emphasize this shift in consumption.

factors. The place of milk in wartime nutrition, neglected in many countries and stressed in others, has had a lasting effect.

How far does climate and the after effects of prohibition lead in the United States to a remarkably high consumption of fresh milk? How far does the quality of the milk and the distribution system contribute to this result? The answers are difficult to find, and the countries which seek to emulate the United States are more or less uncertain how they should embark on the problem. Changes in the system of distribution, which seem to promise increased sales, may be disappointing. They may on occasion lead merely to a rise in sales costs. This has been experienced in Switzerland and Germany.

A comparison of the United States and Switzerland offers, in addition, an example of how widely different the reasons for a high milk consumption may be. In an exhaustive analysis of consumption the distinction must be made between milk alone as a beverage, and milk as an addition to coffee and as an ingredient in foods.

As the results of public opinion have repeatedly shown, many consumers know little about milk and milk products. Any influence exerted on public opinion and based on public opinion research must concern itself with removing all prejudices which are sales resistant. Where medical misgivings limit consumption, however, any effective advertisement will be difficult to achieve. In spite of doubts expressed against butter, the rate per head of butter consumption in a number of countries tends to rise nevertheless. Many people still consider margarine, at least with bread alone, as a substitute product. Perhaps these people achieve, by their carefree attitude, the length of life which others seek to win by strict and painful diet.

The reaction of butter consumption to price changes of butter and margarine is still not sufficiently illuminated. It would be possible, with the help of a large number of regression analyses, to acquire the data from which a considered price policy might take the place of blind guessing. A split in demand as a result of the supply of larger quantities of second quality butter at a lower price and of smaller quantities of first quality butter at an increased price might be profitable.

In a number of countries a rise in the production of skim milk is to be expected as the accompaniment to the further increase in butter production. Encouragement for the consumption of skim milk as a feeding stuff by means of price should be more closely considered. The increased inclusion of low fat milk products among foods for human consumption should also be taken into account. The swing over to low fat milk products, which has been observed in the past few years in some population groups in the United States, will probably find its followers in Europe.

Publicity and Sales Promotion: In the future it is thought that the following problems will have to be solved.

In a certain number of countries increased consumption will continue to depend on an improvement in the hygiene and palatability of milk. As far as the latter is concerned, the tendency to replace pasteurized milk by sterilized milk must be regarded as dangerous. This tendency is manifest in several countries, some of which are even well developed from the dairying point of view.

It is true that the sterilized milk industry is constantly improving its techniques and manufacturing processes, but up to the present it has not discovered the formula for resolving at one and the same time the problems of the hygienic quality, the preservation and the palatability of its products.

The problem of price will continue to play a most important part in milk consumption. In this connection the question of lowering the farm, factory and distributing costs must be pursued constantly. That there are results to be obtained in this field is proved by the American research into the influence of technological developments on the United States dairy industry.

Training distributors in the art of handling and selling milk and milk products is also a determining factor for future consumption in many countries and merits greater attention.

The education of the consumer must also be taken into consideration. In this connection the belief is still held in the advantage, indeed the necessity, of informing the public about the latest tendencies in food matters and the place of milk in a modern, rational, well balanced, healthy and economic diet. Precise data on the value of milk and certain milk components, about which there have been doubts for some time, are also awaited from the science of nutrition.

As far as advertising itself is concerned, the dairy industry is referred to certain tendencies that are manifest in their industry. There is no doubt that audio-visual methods of advertising have not yet been fully exploited and that public attention is attracted by them. New advertising methods are still possible and desirable. In this connection attention should be drawn to the milk brigade movement recently founded in Holland which, in a few months, has acquired a membership of more than 200,000 young people. It is believed in that country - thanks to this movement - that the decrease in milk consumption, apparent for some time, has been checked. At the international level of cooperation positive results can be expected from the International Milk Day.

The Closing Session of the Congress

The closing session of the Congress took place in Church House at 2.30 p.m. July 3, 1959. Sir Thomas Peacock presided. The Chairman thanked

the membership for coming and for the good attendance at all sessions and events. He thanked the officers and lecturers of the several sections and sessions for their contributions. He extended his sincere appreciation for the loyal support that the members of the British Organizing Committee and many other individuals and organizations, and especially the Organizing Secretary, gave in making the Congress meetings successful.

Professor P. Kastli, retiring President, International Dairy Federation, extended to the Chairman and members of the British Organizing Committee the thanks of the International Dairy Federation for a highly successful Congress. Professor A. M. Guerault, the incoming President of the Federation, added his thanks and appreciation to the hosts for the high quality of the service and hospitality that the British Organizing Committee extended to all attendants.

Mr. P. Koch Henricksen, Denmark, on behalf of the Danish National Dairy Committee and the Danish government, extended an invitation to hold the Sixteenth International Dairy Congress in Copenhagen, Denmark, September 3-8, 1962. The Chairman announced that the International Dairy Federation had considered this proposal and had accepted the invitation to meet in Denmark in 1962.

The recommendations of the Congress were presented by the Secretary General and approved unanimously. The Congress was declared closed at 3.30 p.m.

Recommendations Approved by the Fifteenth International Dairy Congress

The following are the resolutions:

1. That the technical agencies of the United Nations and similar international organizations should intensify the good work they are already doing in developing and extending the use of milk and its products in warm countries.
2. That the governments of all countries should sympathetically consider the adoption of the code of Principles, Standards and Designations for Milk and Dairy Products elaborated by a Committee of F.A.O. in April 1959.
3. That every encouragement should be given to efforts to secure international agreements on reference methods for the examination of milk and milk products, and that such methods should be used for control purposes in international trade and as standards in assessing the reliability of the routine methods in individual countries.

4. That there be formed within the International Dairy Federation a Commission to coordinate research work on butterfat and the study of present and new methods for its utilization.

Recommendations Concerning Future Congresses

The United States delegation recommends strongly that this country has much to gain by being represented at future International Dairy Congresses. Aside from the benefits to be gained by exchange of ideas on numerous technical and practical subjects relating to the dairy industry, the mutual respect and understanding that can be gained from direct contact with people from many nations who have a common interest in an industry such as the dairy industry, can hardly be exaggerated.

Participation may depend somewhat on this country's possible future relationship with the International Dairy Federation. In the past the United States has sent an Official Governmental Delegation to participate in the Congress as guests of the government of the country in which the Congress is held. If it should be the decision of industry groups in this country to take out membership in the International Dairy Federation, a direct avenue for closer participation and representation in the Congress, as well as in other affairs of the Federation, would exist. In any event, the delegation feels that the Government of the United States should continue to have representation at future Congresses.

